

The de-silication of water by the magnesite sorbent  
of the VODGEO Institute.

SOV/98-58-10-11/25

the water was passed from top to bottom, but this soon clogged the beds and it was found necessary to reverse the flow. When raw Volga water was treated with magnesite sorbent, the silica content of the treated water was below 0.5 mg/litre silica for only 7 days, during which time 200 litres of water were purified. The silica content then rapidly rose and after two weeks it was 1.4 mg/litre silica. When the water was clarified before treatment, the purifier operated for 27 days before the silica content rose to 0.5 mg/litre, and during this time 1,320 litres of water were purified. Thereafter, the silica content rose to 1 mg/litre. When the water was first cation-treated, the filters operated for a month before the silica content rose to 0.5 mg/litre; thereafter it rose to 1 - 1.5 mg/litre silica. Information is given about the water hardness and the content of other ions during the tests. The chemical composition of the sorbent is discussed. In effect, the substance is magnesia cement and there is no agreed theory of the hardening of this substance. The various existing theories are briefly stated. The effect of the input water analysis on the mechanical properties and dissolution of the sorbent is considered. If very soft cation-treated water passes through the sorbent, some inevitably dissolves. The minimum enrichment of the water in bivalent magnesium and calcium ions is governed by the solubilities

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of  $Mg(OH)_2$  and  $CaCO_3$  (see Table.3.). The relationship between the possible content of bivalent magnesium and the pH value of the water at the outlet from the tube has been calculated and is given in Table.4. In practice, equilibrium was not established and the magnesium content was less than this. To check whether any of the damage to the sorbent was mechanical, tests were made with the water flowing downwards through the bed, though it was occasionally reversed to increase the rate of flow through the bed. The tests were continued for 26 days and the sorbent was examined. The results show clearly that the pulverisation of the sorbent that was observed in the original tests resulted from chemical attack. Lime-treated water was de-silicated at the water purification plant of a metallurgical works. Previously, caustic magnesite treatment had yielded water of high silica content and had given rise to operating difficulties, largely because of unsatisfactory construction of the clarifiers. Moreover, the caustic magnesite was not treated properly. The tests with the magnesite sorbent are described in the preceding article by Mamet and Nikolayev. After a period of use, the ratio of magnesium oxide to magnesium chloride in the sorbent altered from 1.0:1 to 15:1. This is apparently caused by the washing-out of the soluble components, because the filtered water was not sufficiently alkaline,

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due in turn to the use of carbonate alkalinity conditions in liming. Although the water was coagulated and lime-treated, the sorbent became contaminated with organic substances and iron oxides. It was shown that it was technologically possible to de-silicate lime-treated water in this way, but that it must first be filtered. The system needs further testing to check the silica capacity of the sorbent and the effectiveness of de-silication. There are 5 tables and 6 Soviet references.

ASSOCIATION: All-Union Thermo-Technical Institute (Vsesoyuznyy Teploekhnicheskiy Institut)

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KVYATKOVSKIY, V. M.

SOV/24-58-10-34/34

AUTHOR: Solomonov, M. S.

TITLE: Conference on Water Preparation in Thermal Power Stations  
(O vodopodgotovke na teplovykh elektrostantsiyakh)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, 1958, Nr 10, pp 159-160 (USSR)

ABSTRACT: During June 24-27, 1958, a conference took place on problems of water preparation in thermal power stations of high, intermediate, super-high and super-critical pressures. The conference was convened by the Commission on Steam of Very High Parameters of the Power Research Institute, Academy of Sciences USSR, imeni G. M. Krzhizhanovskiy, jointly with the Ministry of Power Stations USSR and the Moscow Scientific-Technical Society of the power industry. Over 400 representatives of scientific research establishments and of power stations participated. In the section on design, setting and operation of combined plant with magnesium desilicizing, the following papers were read:

1) "Experience in setting up and operation of water treatment plant with desilicizing by means of magnesium", V. F. Gvozdev (ORGRES),

2) "State and tasks in the development of plant for magnesium desilicizing of water in thermal power stations", V. M. Kvyat-

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- kovskiy (VTI),  
3) "Schemes of automation of plant with desilicizing by means of magnesium", Ye. N. Krasotkin and V. M. Kvyatkovskiy (VTI),  
4) "Problems of designing combined cation water treatment plants with magnesium desilicizing", A. A. Krupchitskiy (Khar'kovskoe otdeleniye TEP),  
5) "Desilicizing of the water by means of filters", O. N. Shemyakin (VODGEO),  
6) "Investigation of the process of magnesium desilicizing of water at elevated temperatures", L. M. Zhivilov (VTI),  
7) "Magnesium-cation method of desilicizing water", L. S. Foshko (Donbassenergo).  
In the second section, "Experience in designing, setting and operation of chemical desalting plant", the following papers were read:  
1) "Results of investigations and of industrial tests of chemical desalting plant and prospects of their application in thermal power stations with super-high and above-critical steam parameters", F. G. Prokhorov (MES SSSR),

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2) "New ionites for water preparation plant and prospects of their industrial manufacture", A. V. Pashkov (Institut plastmass im. Frunze),

3) "Problems of design of chemical desalting plant", V. S. Chernov (KhOTEP), I. M. Sokolov,

4) "Automation of pressure filters for water treatment in power stations", S. M. Gurvich (MOTSKTII).

In addition to these papers, 20 informative communications of various local representatives were presented. It transpired that during recent years methods of magnesium desilicizing and of thorough chemical desalting of water have gained extensive utilisation in Soviet power stations and these played an important role in the development of Soviet steam power. Successful mastering of magnesium desilicizing of water together with the application of stepwise evaporation in boilers, washing of steam and other measures enabled ensuring reliable and economic exploitation of high pressure (110 atm) boilers in combined heat and power stations which operate with a large loss of condensate. During recent years rational designs of illuminators have been developed and also methods for dry dosing of caustic magnesite as well as mechanization of its handling and an original method was described

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of desilicizing by applying lime on the preliminarily magnesium-cathionated water. In individual cases it became possible to feed the water directly from the illuminators into cathion filters of the first stage, in which the processes of filtration and cathion treatment are combined. Work has started on automation and mechanisation of preliminary purification and of introducing treatment involving high temperature pre-heating of the water. Water treatment by application of lime and in individual cases by simultaneous desilicizing by magnesium in the case of heating up to 120°C permits more thorough elimination of silicon compounds. High temperature desilicizing requires special apparatus operating under pressure, thermally stable cathions and also new automatic circuits. Laboratory, semi-industrial and industrial tests of the filtration method of desilicizing water, developed by VODGEO have shown that this method is applicable also for H-a cathionated water without preliminary application of lime. In chemical desalting plants which use ionites of Soviet manufacture, it became possible to solve the problem of feeding very high pressure drum boilers (180 atm) and thus extensive prospects are opened up of using thoroughly desalted natural

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water and condensates for feeding powerful direct flow boilers of super-critical pressures. An ionite method of purification of condensates of nitrogen-fat plants permits utilising desalted condensate for feeding high pressure boilers and returning regeneration products into the technological cycle of the plant for producing from it the industrial product. Such a process of purification of the waste condensates allows reducing operational costs for water treatment and feeding of industrial heat-power stations in chemical works. Various deficiencies were pointed out in the existing technology of water purification as well as in the designs adopted in some of the projects.

Card 5/5

USCOMM-DC-60,653



KVYATKOVSKIY, V.M., inzh.

Compensating the reactive power of inverter substations used  
for direct current transmission. Elek.sta. 29 no.11:40-46  
N '58. (MIRA 11:12)

(Electric substations)

KVIATKOVSKIY, V.M.

Transient processes in the inverter conversion scheme under  
various methods of compensation of the reactive power. Izv.  
NIIFT no.4:19-37 '59. (MIRA 13:2)  
(Electric circuit breakers)

SOV/96-59-5-13/19

AUTHORS: Kvyatkovskiy, V.M., Candidate of Technical Sciences and  
Zhivilova, L.M., Candidate of Technical Sciences

TITLE: An Investigation of the Process of Magnesia De-silication  
of Water at High Temperature (Issledovaniye protsessa  
magnezial'nogo obeskremlivaniya vody pri vysokoy  
temperature)

PERIODICAL: Teploenergetika, 1959, Nr 5, pp 70-74 (USSR)

ABSTRACT: The practice of treating water with lime or soda-lime  
at temperatures of 100°C and more is receiving attention  
in the American technical press, also special de-silicating  
agents are sometimes used. The main advantage of the  
proposal from the standpoint of Soviet practice is the  
prospect of obtaining more efficient de-silication. This  
article describes work done to assess the possibility of  
achieving good de-silication of water by lime treatment  
without introducing additional magnesia agents; also to  
investigate the possibility of improving de-silication  
when water is treated with caustic magnesite or in other  
ways. The laboratory equipment that was used to treat  
water at a temperature of 120 to 130°C is described and

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drawn schematically in Fig 1. The test results are in Fig 2, 3 and 4 and Tables 1, 2, 3, and 4. They show that by means of caustic magnesite at 120 to 130°C it is possible to reduce the content of silicic acid compounds in the water to a value of the order of 0.3 mg/litre  $\text{SiO}_2$ . At 40 to 80°C the silica content can only be reduced to 0.75 mg/litre. In making the tests, particular attention was paid to reducing the contact time of the liquid and suspended precipitates. It will be seen from the results plotted in Fig 4, that the process of de-silication of water at 120 to 130°C is completed quite quickly and is very nearly over in 15 minutes. If the contact time is increased to 1 hour there is some improvement in the de-silication but the time of 15 minutes is best because then the size of the treating equipment can be very much reduced. Comparative tests showed that there is nothing to choose between the temperatures of 120 and 130°C. When treating water with caustic magnesite at temperatures in this range a

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residual silica content of 0.5 mg/litre can be obtained with a caustic magnesite dose of 5 mg/mg and a contact time of 15 minutes. The process of de-silication was then worked out when using lime to treat various waters. These were ordinary water, magnesium-cationised water and finally water in which the initial magnesium ion content was artificially increased by introduction of magnesium chloride. The test results show that adequate de-silication may be obtained, provided the amount of magnesium separated from the treated water is not less than 1 mg equiv per 10 mg  $\text{SiO}_2$  in the initial water. The data in Table 5 were obtained during lime treatment of magnesium-cationised water at 120 to 130°C and indicate that the de-silication is more effective than at 40°C. The results plotted in Fig 6 show that increasing the contact time only improves the de-silication from 0.8 mg/litre  $\text{SiO}_2$  at 15 minutes to 0.7 mg/litre  $\text{SiO}_2$  at 60 minutes. Table 4 gives for

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comparison data that can be obtained when de-silicating water with caustic magnesite and by lime treatment of magnesium-cationised water at 120 to 130°C. The de-silication is improved by adding caustic magnesite to the water. De-silication by lime treatment of magnesium-cationised water is limited by the possibility of increasing the magnesium content in the water to be treated. It follows from the tests that the method can be used only for treating water with an initial hardness not less than 2.5 to 3.0 mg equiv/litre. If the water hardness is only 1 to 1.5 mg equiv/litre, the residual silica content is up to 1 mg/litre. When treating water at 120 to 130°C thermal losses are, of course, higher than at 40°C but this is more than counter-balanced because reduced blow-down can be used when the silica content of the water is reduced. It is calculated that overall the use of high temperature for de-silication will reduce the feed-water cost by about 35 kopeks a ton. It is concluded that the investigation has confirmed the

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technological and economic advantages of using a temperature of 120 to 130°C for water de-silication. It will be necessary to have temperature-stable cationite, also clarifiers and batch meters of special construction for operating under pressure. A further study will be required into the technology of de-silication and the design of equipment. There are 6 figures, 4 tables and 5 references, 2 of which are Soviet and 3 English.

ASSOCIATION: Vsesoyuznyy teplotekhnicheskiy institut (The All-Union Thermo-Technical Institute)

Card 5/5

KVYATKOVSKIY, V.M., kand.tekhn.nauk

Treatment of water by methods involving the precipitation of dissolved  
impurities. Zhur. VNIIO 5 no.6:637-645 '60. (MIRA 13:12)

(Water--Purification) (Water --Softening)



AKSEL'ROD, M.M.; KVYATKOVSKIY, V.M.

Technological and economic indices of d.c. power transmission  
and its comparison to other modes of transporting power resources.  
Izv. NIIPT no.6:92-111 '60. (MIRA 14:7)

(Electric power distribution—Direct current)  
(Power resources—Transportation)

KVIATKOVSKIY, V.M., kand.tekhn.nauk; BAULINA, A.I., inzh.;  
FOSHKOV, L.S., inzh.; LITVINOV, V.G., inzh.;  
LOSEV, A.S., inzh.

Studying the hot liming process in water enriched with  
magnesium compounds. Teploenergetika 7 no.10:47-52 0 '60.  
(MIRA 14:9)

1. Vsesoyuznyy teplotekhnicheskii institut i Donbassenergo.  
(Feed water purification)

SHKROB, Mikhail Samoylovich, doktor tekhn. nauk; PROKHOROV, Fedor Georgi-  
yevich, kand. tekhn. nauk, Prinsipali uchastiye: AKOL'ZIN, P.A.,  
doktor tekhn. nauk; APEL'TSIN, I.E., doktor tekhn. nauk; ZENKEVICH,  
Yu.V., kand. tekhn. nauk; KVIATKOVSKIY, V.M., kand. tekhn. nauk;  
KLYACHKO, V.A., doktor tekhn. nauk; GURVICH, S.M., inzh.; ORZHEROV-  
SKIY, M.A., inzh.; STYRIKOVICH, M.A., retsenzent; MARTYNOVA, O.I.,  
retsenzent; VORONIN, K.P., tekhn. red.

[Water treatment and water systems for steam-turbine electric power  
plants] Vodopodgotovka i vodnyi rezhim paroturbinnnykh elektrostantsii.  
Moskva, Gos. energ. izd-vo, 1961. 470 p. (MIRA 14:9)  
(Feed water purification) (Steam turbines)

KVYATKOVSKIY, V.M.; MEL'GUNOV, N.M.

Static stability of a d.c. power transmission system feeding a  
receiving load of a comparable power. Izv. NIIPT no.7:93-110  
'61. (MIRA 14:9)  
(Electric power distribution--Direct current)

KVYATKOVSKIY, V.M., kand.tekhn.nauk; SHCHUKINA, A.G., inzh.;  
MATSKEVICH, G.V., inzh.

Automatic proportioning of reagents at the water treating  
installations of electric power plants. Teploenergetika  
8 no.4:15-19 Ap '61. (MIRA 14:8)

1. Vsesoyuznyy teplotekhnicheskiy institut.  
(Electric power plants)  
(Feed-water purification)

KVYATKOVSKY, V.M.

Joint operation of a converter with a modulating system having  
a simple structure and remote control operation. Sov. A.P.  
no. 14234-480 '57. (M.S. 1244)

KVYATKOVSKIY, V.M.; MATSKEVICH, G.V.; SHEVTSOVA, A.G.

Automation of systems with clarifying agents for preliminary  
water purification. Vodopod., vod. rezh. i khimkont. na parosil.  
ust. no.1:132-142 '64. (MIRA 18:2)

1. Vsesoyuznyy ordena Trudovogo Krasnogo Znameni teploekhnicheskii  
institut imeni V.E. Dzerzhinskogo.

KVYATKOVSKIY, V. S. Prof.

"Effect of the Flow on the Chamber of the Operating Wheels in a Klapan Turbine," abstracted in Gidrotekh. stroi., Nos. 5/6, pp 28029, 1946

VIGM



KVYATKOVSKIY, V. S. ed.

Maiye gidroturbiny [Small hydraulic turbines]. Moskva, Masgiz, 1950.

SO: Monthly List of Russian Accessions, Vol 6 No 12 March 1954.

KVYAKTOVSKIY, V.S., professor.

Process of regulating the flow through (and capacity of) reaction  
turbines. Trudy VIGM no.12:5-18 '50. (MLRA 10:8)  
(Hydraulic turbines)

KVYATKOVSKIY, V.S., laureat Stalinskoy premii, professor; MATVEYEVA, Ye.N.,  
tekhnicheskii redaktor; MODEL', B.I., tekhnicheskii redaktor.

[Working processes in axial-flow hydraulic turbines] Rabochii pro-  
tsess osevoi gidroturbiny. Moskva, Gos. nauchno-tekhn. izd-vo  
mashinostroit. lit-ry, 1951. 156 p. Part 1: [Studying currents in  
axial-flow hydraulic turbine] Issledovanie potokov v osevykh gidro-  
turbinaх. (Moscow. Vsesoiuznyi nauchno-issledovatel'skii institut  
gidromashinostroeniia. Trudy, no.14). (MLRA 10:8)  
(Hydraulic turbines)

KVYATKOVSKIY, V.S., laureat Stalinskoy premii, professor; SHCHAPOV, N.M.,  
doktor tekhnicheskikh nauk, professor, redaktor; POPOVA, S.M.,  
tekhnicheskii redaktor; TIKHONOV, A.Ya., tekhnicheskii redaktor.

[Working process of axial-flow hydraulic turbines; Pt. 2: Methods for  
hydraulic calculation of blades for hydraulic turbines] Rabochii  
protsess osevoi gidroturbiny; Pt. 2: O sposobakh gidravlicheskogo  
rascheta lopastei osevykh gidroturbin. Moskva, Gos. nauchn.-tekhn.  
izd-vo mashinostroitel'noi lit-ry, 1952. 140 p. (Vsesoiuznyi nauch-  
no-issledovatel'skii institut gidromashinostroenia. Trudy, no.15)  
(MLRA 9:8)

(Hydraulic turbines--Blades)

KVYATKOVSKIY, V.S.

KOTENEV, I.V. ; KVIATKOVSKIY, V.S.

[Regulating the power and rotation speed of small hydraulic turbines]

Regulirovanie moshchnosti i skorosti vrashchenia mal'kh gidroturbin.

Pod red. V.S.Kviatkovskogo. Moskva, Gos. energ. izd-vo, 1953. 55 p.

(MLRA 7:4)

(Hydraulic turbines)

KVYATOVSKIY, V. S.

The Committee on Stalin Prizes (of the Council of Ministers USSR) in the fields of science and inventions announces that the following scientific works, popular scientific books, and textbooks have been submitted for competition for Stalin Prizes for the years 1952 and 1953. (Sovetskaya Kultura, Moscow, No. 22-40, 20 Feb - 3 Apr 1954)

<u>Name</u>	<u>Title of Work</u>	<u>Nominated by</u>
Kvyatovskiy, V. S.	"The Working Process of an Axial-Flow Hydraulic Turbine"	All-Union Scientific Research Institute of Hydraulic Machine Building

SO: W-30604, 7 July 1954

RE: "Operating Process of an Axial Hydraulic Turbine." Dr. Tech Sci, Moscow Order of Lenin

Lower Engineering Inst Lenni V. M. Molotov, 7 Feb 54. Dissertation (Vachernya, a Moscow  
Moscow, 1 Feb 54)

SO: SM 181, 12 Aug 1954

SOV/124-57-9-10371

Translation from: Referativnyy zhurnal, Mekhanika, 1957, Nr 9, p 69 (USSR)

AUTHOR: Kvyatkovskiy, V.S.

TITLE: On the Cavitation Properties of Hydraulic Turbines (O kavita-tsionnykh svoystvakh gidroturbin)

PERIODICAL: Tr. Mosk. energ. in-ta, 1956, Nr 19, pp 329-353

ABSTRACT: The cavitation coefficient is found from the Bernoulli equation for the absolute and relative flow through a turbine. Assuming that the exit velocity triangle is an isosceles one, and replacing the velocities with velocity coefficients, which are constant for geometrically-similar turbines, the author develops an equation for the determination of the cavitation coefficient of an actual turbine in accordance with known laboratory results of cavitation tests on a model turbine. The practical value of the formula obtained remains yet to be confirmed by a test. The paper suggests a method for the quantitative evaluation of the influence of the shape of the various working parts of a turbine on its cavitation properties. The influence of the spiral casing, of the shape of the guiding distributor and draft tube, and of the location of the main shaft is analyzed. On the basis of the

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SOV/124-57-9-10371

On the Cavitational Properties of Hydraulic Turbines

formulae obtained a comparison is made of vertical and horizontal turbines identical in size and with identical tailwater submersion and cavitation expectancy for curved- and straight-centerline draft tubes. The advantages of a horizontal turbine with a straight-centerline draft tube are demonstrated. Because of the higher efficiency of the horizontal reaction-type axial turbines, their smaller foundation depth and the availability of a reserve plant capacity during a flood period, a wider use of this type of turbine is suggested.

I. I. Orlov

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*KL (A) Kovaly, K.S.*

KOVALEV, N.N., prof.; KNYATKOVSKIY, V.S., doktor tekhn.nauk, prof.; TISTROVA,  
O.N., red.; VORONIN, K.P., tekhn.red.

[Hydraulic turbine industry in U.S.S.R.] Gidroturbinostroenie v SSSR.  
Moskva, Gos. energet. izd-vo 1957. 151 p. (MIRA 11:3)

1. Chlen-korrespondent AN SSSR (for Kovalev)  
(Hydraulic turbines)

*А. В. Ятковский, в. с.*  
KVYATKOVSKIY, V.S., doktor tekhn.nauk, prof.

Two new systems for reaction rotating vane hydraulic turbines.

Gidr.stroi. 26 no.11:62-67 N '57.

(MIRA 10:10)

(Hydraulic turbines)

KVYATKOVSKIY, V.S.

PHASE I BOOK EXPLOITATION

1065

Vsesoyuznyy nauchno-issledovatel'skiy institut gidromashinostroyeniya

Issledovaniya i raschety gidroturbin i regulyatorov (Investigation and Design of Hydraulic Turbines and Regulators) Moscow, Mashgiz, 1958. 129 p. (Series: Its: Trudy, vyp. 21) 4,000 copies printed.

Ed.: Kvyatkovskiy, V.S., Doctor of Technical Sciences, Professor;  
Ed. of Publishing House: Prokof'yeva, L.G.; Tech. Eds: Shikin, S.T. and Gerasimova, Ye.S.; Managing Ed. for Literature on Machine Building and Instrument Construction (Mashgiz): Pokrovskiy, N.V., Engineer.

PURPOSE: This book is intended for engineers, technical workers, and graduate students and also for upperclassmen of vuzes and tekhnikums studying problems of hydraulic turbine building.

COVERAGE: This is a collection of articles dealing with investigations of hydraulic turbines and regulators and their design. The following subjects are covered: results of model testing of im-

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Investigation and Design (Cont.) 1065

pulse and reaction (axial) hydraulic turbines, theoretical investigations and calculations on hydraulics of rotors of axial and radial-axial (mixed flow) hydraulic turbines, characteristics of cavitation and starting regimes of axial hydraulic turbines, and analysis and calculations of dynamics of speed regulators of hydraulic turbines.

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Investigation and Design (Cont.) 1065

Shal'nev, K.K. Effect of the Shape of Blade-end Edges on Cavitation and Performance of a Hydraulic Turbine 57

Shchipulin, I.F., Candidate of Technical Sciences. Analysis of Performance Characteristics of a Hydraulic Turbine With Inclined Nozzle Based on the Flow Energy Balance 76

Shchipulin, I.F., Candidate of Technical Sciences. Efficiency-power Characteristics of the Impulse [Pelton] Turbine Model 96

Popov, D.N., Candidate of Technical Sciences. Effect of the Characteristics of a Servomotor on Hydraulic Turbine Speed-regulation Regimes 110

AVAILABLE: Library of Congress

GO/mfd  
1-28-59

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KVYATKOVSKIY, V.S., doktor tekhn.nauk, prof.

Designing runner blades for Francis-type hydraulic turbines. Trudy  
VIGM no.21:39-56 '58. (MIRA 11:11)  
(Hydraulic turbines--Blades)

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PHASE I BOOK EXPLOITATION

SOV/2226

Vsesoyuznyy nauchno-issledovatel'skiy institut gidromashinostroyeniya

Issledovaniye gidroturbin (Study of Hydraulic Turbines) Moscow,  
Mashgiz, 1959. 195 p. (Series: Its: Trudy, vyp. 23) 1,900  
copies printed.

Additional Sponsoring Agency: USSR. Gosudarstvennaya planovaya  
komissiya. Glavnoye upravleniye nauchno-issledovatel'skikh  
i proyektnykh organizatsiy.

Ed.: V.S. Kvyatkovskiy, Doctor of Technical Sciences; Ed. of  
Publishing House: L.G. Prokof'yeva, and A.M. Monastyrskaya; Tech.  
Ed.: V.D. El'kind; Managing Ed. for Literature on Machine  
Building and Instrument Making: N.V. Pokrovskiy, Engineer.

PURPOSE: This book may be of interest to designers, operations  
personnel of hydroelectric stations, and students of vtuzes  
who are specializing in the field of hydraulic turbine manu-  
facturing.

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Study of Hydraulic Turbines

SOV/2226

COVERAGE: This is the 23rd issue of the Transactions of VIGM. It contains four articles by Professor N.M. Shchapov, Doctor of Technical Sciences, and is dedicated to him on the occasion of his 50th anniversary in the teaching profession. The first article deals with the method of determining the efficiency of an actual turbine from the results of model testing. The second article deals with the selection of the optimum length of a hydraulic turbine draft tube. Various characteristics of a draft tube are described. In the third article an attempt is made to substantiate the theory of hydraulic engines utilizing the energy of open channel flow. The last article describes annular-flow impulse turbines. No personalities are mentioned. References follow each article.

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Channel Flow 181

Annular Flow Hydraulic Impulse Turbines 184

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ALEKSANDROV, B.K., prof.; prinimali uchastiye: IVANOV-SMOLENSKIY,  
A.V., dots.; KORKHOVA, V.I., inzh.; OBOROTOVA, M.G., inzh.;  
KVIATKOVSKIY, V.S., prof.; ALEKSEYEV, A.Ye., prof.

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KVIATKOVSKIY, V.S., doktor tekhn.nauk, prof.

Development of the hydraulic turbine industry in the U.S.S.R.

Trudy MEI no.33:267-284 '60.

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KVIATKOVSKIY, V.V.

Stationery installation for metal recovery from slag. Stal'  
15 no.10:948-949 0 '55. (MIRA 9:1)

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(Slag) (Magnetic separation of ores)

KVYATKOVSKIY, Ye.M.; TSIHEL'MAN, I.S.

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Razved.i okhr.nedr 22 no.5:28-31 My '56.

(MLRA 9:9)

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(Ores--Sampling and estimation)  
(Assaying apparatus)

DUBOV, R.I.; KVIATKOVSKIY, Ye.M.

Spectrum analysis of metallometric samples for tungsten.  
Izv. vys. ucheb. zav.; geol. i razv. 2 no.2:102-106 F '59.  
(MIRA 12:10)

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Some regularities in the relief development of mountainous regions  
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no.2:124-128 '61. (MIRA 15:2)  
(Transbaikalia--Ore deposits)



KVYATKOVSKIY, Ye.M.; KRITSUK, I.N.

Method of metallometric surveying in prospecting for tin deposits.  
Zap. LGI 39 no.2:129-135 '61. (MIRA 15:2)  
(Transbaikalia--Tin ores)

S/081/61/000/023/012/061  
B117/B147

AUTHORS: Dubov, R. I., Kvyatkovskiy, Ye. M.

TITLE: Distribution of tungsten in secondary aureoles of diffusion

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 23, 1961, 103, abstract  
23G86 (Zap. Leningr. gorn. in-ta, v. 39, no. 2, 1961, 136-144)

TEXT: One of the tungsten deposits in the eastern Transbaikal region is connected to greisenized muscovite-granites and Paleozoic sandstones and schists cemented with chert. The method of sampling loose deposits is described, from which 1109 samples have been taken in three sections at different depths. It has been found that in samples taken from greater depths the relative number of samples with appreciable amounts of W increases. The configuration and size of aureoles of diffusion depend on the eluvial-diluvial fraction used in the analysis. The manifest themselves most clearly by an analysis of the coarse alluvial fraction. A study of the distribution of W according to fractions shows that its high concentrations are fixed in 1 - 3 and 0.25 - 1 mm fragments. Coarser and finer fractions show a poorer W content. The portion of clay of the

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Distribution of tungsten in...

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deposits contains virtually no W. The distribution of Sn according to depths and fractions is essentially equal to that of W. [Abstracter's note: Complete translation.]

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KVYATKOVSKIY, Ye.M.; KRITSUK, I.N.

Quantitative interpretation of secondary dispersion halos of  
lead. Zap. IGI 45 no. 2:3-9 '63. (MIRA 17:5)

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BLINOV, V.A.; KVIATKOVSKIY, Ye.M. —

Geochemical characteristics of granitoids in the Khapcheranga  
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GRIGOR'YEVA, O.A.; KVYATKOVSKIY, Ye.M.

Highly sensitive double-arc method of spectrographic analysis  
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Zap. LGI 45 no. 2:74-80 '63.

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KVYATKOVSKIY, Ye.V. (Moskva); GLEYZER, G.D. (Moskva)

Psychology of the activation of teaching in evening secondary  
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(MIRA 18:2)



CZECHOSLOVAKIA/Electronics - Photocells and Semiconductor Device H

Abs Jour : Ref Zhur Fizika, No 12, 1959, 27913  
 Author : Nesvadba, Otabar; Kwaczek, Otmr; Machala, Frantisek  
 Inst : Tesla Roznov, Czechoslovakia  
 Title : Geometrical Model of a Fused p-n-p Junction  
 Orig Pub : Slaboproudy obzor, 1958, 19, No 11, 755-758  
 Abstract : As is known, oxides on the surface of germanium junctions, and also the warm humid ambient reduce the constancy of the properties of transistors both during storage time and during the operating process. To attain this constancy by technological means, a geometrical model is proposed for the fused p-n-p junction. The action of this model is investigated when moisture acts on the junction at an increased

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CZECHOSLOVAKIA/Electronics - Photocells and Semiconductor Device. H  
 APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000928320008-9"

Abs Jour : Ref Zhur Fizika, No 12, 1959, 27913

temperature, by measuring such electric parameters as the collector current in a grounded-base circuit and with the emitter disconnected, the surface current of the collector for a grounded emitter, the rate of surface recombination.  
 Bibliography, 20 titles.

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New sand carriers for hydraulic cleaving of petroleum and gas collectors.  
Prace Inst naft no.76:1-7 '63.

*Kwaciszewska, A.*

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M. S.

*PM* LFH

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100 cP/20° C. Method of operation is described. M. S.

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Warszawa, Poland

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KWAL, M.

621.313.616.9 : 621.314.22.048  
✓ 4123. The possibility of applying synthetic materials  
as high-voltage insulation in Polish-made instrument  
transformers. A. JERZYKIEWICZ AND M. KWAL.  
*Przegląd elektrotech.*, 31, No. 2-3, 245-5 (1985), in  
Polish.

The difficulties encountered in the production of  
dry h.v. transformers are described. They may be  
used only up to 30 kV. Synthetic materials are  
discussed and special requirements for voltage trans-  
formers (with one earthed or both terminals un-  
earthed) and current transformers (high mechanical  
strength of insulation on short-circuit) are mentioned.  
Examples of transformers with plastic insulation are  
given.

M. W. MAKOWSKI

KWAL, M.

621.314.224.088 : 621.3.013.5

✓ 4070. The compensation of errors in current trans-  
formers by double magnetic leakage. M. KWAL AND  
P. Z. GOLASZEWski. Przegląd elektrotechniczny, No. 2-3,  
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The method consists in the utilization of double  
magnetic leakage to vary the reactance of the  
secondary winding in the current transformer. It  
introduces the negative value of reactance and resis-  
tance in the secondary winding and may be used for  
compensation of current transformer errors. The  
transformers made by this method give good results  
and great economy in material. At the present time  
it is applied to low-voltage current transformers but  
it is expected to apply it for transformers up to 10 kV.  
M. W. MAKOWSKI

①



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(ARTHRITIS, RHEUMATOID, diag.  
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(RHEUMATIC FEVER, diag.  
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BORYNIEC, Atanazy; KWAPINSKI, Jan; MIKOLAJCZYK, Wlodzimierz

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1. Department of Technology of Artificial Fibers, Technical  
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KWASNIEWSKI, Jan, inz.

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no.5:145-149 My '64.

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